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CMCC Doc. No. 151X5.1143

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10 June 1958

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Dear Dan:

Recent environmental testing of System 4 has disclosed that the Bands 1A and 1B receiver circuits lose their sensitivity after extended periods of operation at high altitudes due to the high temperature they generate. The loss of sensitivity is especially severe in Band 1A, and is caused by the heat induced frequency drift in the first i-f amplifier and second local oscillator. The problem is further aggravated by the fact that frequency drift in the two circuits is in opposite directions. Under extreme conditions, this drift can cause the signal to fall outside the passband of the first i-f amplifier.

Within test and delivery schedule limitations we have taken some corrective action with partial success. These corrective measures include increasing first i-f amplifier bandwidth, decreasing the number of heat-producing components in the affected sub-assemblies and providing additional cooling in the affected units.

While these changes have improved the reliability of the affected units, additional modifications are needed to insure optimum performance under actual environmental conditions. The modifications which we propose consist of redesigning the circuit of the i-f amplifier stages to improve bandwidth and center-frequency stability, redesigning the circuit of the second local oscillator to improve the frequency-vs. -temperature characteristics, and repackaging to provide better heat dissipation.

Should you approve this proposed program by 27 June 1958, these changes can be incorporated into Serial No. 101 by redesigning the 1A/1B units which are being prepared for field installation on Serial No. 101. Serial No. 102 can be modified here at the plant as part of its overall modification. Field modification kits can be prepared for Serial Nos. 103 and 104, and Serial Nos. 105 through 107 can be modified prior to delivery.

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The total estimated cost for this program is The fee,

25X1

and the total estimated cost including fee is
 This proposal is for new work which is not covered by present contract funding.

Sincerely,


Dean
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Enclosures:

Copies 1-3 of the following
classified documents:

1131X5.160
1132X5.216
1134X5.86

cc: J.L.W. - AGO
Copy 4 of the above classified documents

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